

AMENDMENTS TO THE CLAIMS

1-17. (canceled)

18. (previously presented) An implantable neural stimulator module, comprising:
an hermetically-sealed housing;
an electronic subassembly housed within said hermetically-sealed housing;
a rechargeable power source contained within said hermetically-sealed housing and
operatively connected to said electronic subassembly for providing operating
power to said electronic subassembly;
a first electrode external to said hermetically-sealed housing and electrically coupled to
said electronic subassembly; and
a second electrode external to said hermetically-sealed housing and electrically coupled
to said electronic subassembly,
wherein the electronic subassembly measures a voltage during recharging of the
rechargeable power source via an external charging field, and wirelessly transmits
the measured voltage to at least one external device, wherein the measured voltage
is measured when no stimulation is being provided by the electronic subassembly.

19. (previously presented) The implantable neural stimulator module of claim 18 wherein at
least one of the first and second electrodes is carried on an external surface of said hermetically-
sealed case.

20. (previously presented) The implantable neural stimulator module of claim 18 wherein the
rechargeable power source comprises a rechargeable battery.

21. (new) An implantable neural stimulator module, comprising:
- an hermetically-sealed housing;
 - an electronic subassembly housed within said hermetically-sealed housing;
 - a rechargeable power source contained within said hermetically-sealed housing and operatively connected to said electronic subassembly for providing operating power to said electronic subassembly;
 - a first electrode external to said hermetically-sealed housing and electrically coupled to said electronic subassembly;
 - a second electrode external to said hermetically-sealed housing and electrically coupled to said electronic subassembly;
 - an antenna coil within said hermetically-sealed housing; and
 - telemetry circuitry, coupled to said antenna coil, for allowing data-containing signals to be received from and sent to at least one external device,
- wherein the electronic subassembly measures a rectified voltage during recharging of the rechargeable power source via an external charging field, and transmits the measured voltage to one of the at least one external devices, wherein the measured voltage is measured when no stimulation is being provided by the electronic subassembly.
22. (new) The implantable neural stimulator module of claim 21 wherein the electronic subassembly includes a ferrite core around which the antenna coil is wrapped.
23. (new) The implantable neural stimulator module of claim 22 wherein the ferrite core includes a first half and a second half.
24. (new) The implantable neural stimulator module of claim 21 wherein the hermetically-sealed housing comprises a tubular-shaped housing having a length no greater than about 27 mm and a diameter no greater than about 3.3 mm.

25. (new) The implantable neural stimulator module of claim 21 wherein the electronic subassembly includes means for generating stimulation pulses that are applied through the first and second electrodes.
26. (new) The implantable neural stimulator module of claim 25 wherein at least one of the first and second electrodes is carried on an external surface of said hermetically-sealed case.
27. (new) The implantable neural stimulator module of claim 21 wherein the rechargeable power source comprises a lithium-ion battery.
28. (new) The implantable neural stimulator module of claim 24 wherein the rechargeable power source comprises a super capacitor.
29. (new) The implantable neural stimulator module of claim 21 wherein the rechargeable power source comprises a rechargeable battery.
30. (new) The implantable neural stimulator module of claim 21 wherein at least one of the external devices is an external charger.

31. (new) An implantable neural stimulator module, comprising:
- an hermetically-sealed housing;
 - an electronic subassembly housed within said hermetically-sealed housing;
 - a rechargeable power source contained within said hermetically-sealed housing and operatively connected to said electronic subassembly for providing operating power to said electronic subassembly;
 - a first electrode external to said hermetically-sealed housing and electrically coupled to said electronic subassembly;
 - a second electrode external to said hermetically-sealed housing and electrically coupled to said electronic subassembly; and
 - telemetry circuitry for allowing data-containing signals to be received from and sent to at least one external device,
- wherein the electronic subassembly measures a voltage during recharging of the rechargeable power source via an external charging field, and transmits the measured voltage to one of the at least one external devices, wherein the measured voltage is measured when no stimulation is being provided by the electronic subassembly.
32. (new) The implantable neural stimulator module of claim 31 wherein the rechargeable power source comprises a lithium-ion battery.
33. (new) The implantable neural stimulator module of claim 32 wherein the rechargeable power source comprises a super capacitor.
34. (new) The implantable neural stimulator module of claim 31 wherein the rechargeable power source comprises a rechargeable battery.
35. (new) The implantable neural stimulator module of claim 34 wherein the hermetically-sealed housing is tubular shaped.